

CLAIMS

1. Multistage centrifugal compressor comprising at least one stage 10 which, in turn, comprises a lower half-tank 11, an upper half-tank 12, a series of lower half-diaphragms 16, a shaft 13 equipped with a series of rotors 14, a series of upper half-diaphragms 18, a lower suction half-diaphragm 51, an upper suction half-diaphragm 52, characterized in that the lower suction half-diaphragm 51 and the upper suction half-diaphragm 52 include a portion 71 and a portion 72, respectively, suitable for being coupled with the lower half-diaphragms 16 and with the upper half-diaphragms 18, respectively, to form a first pile 41 of lower half-diaphragms 16 and a second pile 42 of upper half-diaphragms 18, respectively.
2. The multistage centrifugal compressor according to claim 1, characterized in that said shaped cylindrical section 71 comprises a series of annular housings 59 suitable for being coupled with lower half-diaphragms 16 and in that said shaped cylindrical section 72 comprises a series of annular housings 60 for balancing the axial stress received during the functioning of the multistage centrifugal compressor.
3. The multistage centrifugal compressor according to claim 1, characterized in that each lower half-diaphragm 16 includes a section 81 suitable for being respectively

coupled with an internal housing 59 of the relative lower suction half-diaphragm 51, and in that each upper half-diaphragm 18 includes a section 82 suitable for being respectively coupled with an internal housing 60 of the
5 relative upper suction half-diaphragm 52.

4. The multistage centrifugal compressor according to claim 1, characterized in that the lower suction half-diaphragm 51 comprises a series of radial shaped grooves 61 and, correspondingly, the upper suction half-diaphragm
10 52 comprises a series of radial shaped grooves 62.

5. The multistage centrifugal compressor according to claim 1, characterized in that the lower suction half-diaphragm 51 includes a section with a shaped basis 63, open at the centre and, correspondingly, the upper suction half-diaphragm 52 includes a section with a shaped
15 basis 64, open at the centre.

6. The multistage centrifugal compressor according to claim 1, characterized in that the lower suction half-diaphragm 51 and the upper suction half-diaphragm 52 respectively include supporting feet to adapt the multi-
20 stage centrifugal compressor to the configuration with a horizontal opening of the tank.